

## **OCCUPATIONAL GROUP: Engineering, Mathematics and Science**

### **CLASS FAMILY: Engineering**

#### **CLASS FAMILY DESCRIPTION:**

**This family of positions includes those whose purpose is to provide professional engineering services in the areas of design, analysis, construction administration or compliance. These positions work closely with or may supervise those positions in the Engineering Technology job family and related staff.**

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#### **CLASS TITLE: Technical Analyst Trainee**

#### **DISTINGUISHING CHARACTERISTICS:**

These positions, at the full-performance level, perform professional engineering services, the adequate performance of which requires engineering education, training and experience. Responsibilities may include planning and design, conducting studies, data analysis, consultation, reviews for compliance and the coordination of construction projects. These positions may specialize in a particular area of employment. Work is performed with more independence as proficiency is demonstrated. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Conducts studies and performs data analyses.
- Coordinates construction projects.
- Conducts interim and final inspections of projects to determine compliance with applicable laws, regulations, and specifications.
- Prepares and reviews plans and/or contracts for projects, calculates material quantities and recommends alternative methods.
- Writes statistical and narrative reports detailing recommendations, conclusions, and findings from inspections, reviews and analyses.
- May attend meetings or public hearings to observe or attest to findings.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of agency specific policies and practices.
- Knowledge of applicable state and federal laws, rules and regulations.
- Knowledge of equipment and other instruments used in various types of engineering.
- Knowledge of fundamentals of various types of engineering.
- Ability to apply engineering principles in solving engineering problems.
- Ability to communicate effectively, both orally and in writing.
- Ability to develop and maintain effective working relationships.

**MINIMUM QUALIFICATIONS:**

**Education:** Bachelor's degree from a regionally accredited college or university with a major in Engineering OR Bachelor's degree from an ABET accredited college or university with a major in Civil, Electrical, Electrical Design, Mechanical or Mining Engineering Technology.

**Experience:** No experience required.

**Education & Experience Substitution:** N/A

**Certificates, Licenses, Registrations:** N/A

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**CLASS TITLE: Technical Analyst Associate****DISTINGUISHING CHARACTERISTICS:**

These positions, at the beginning level, perform administrative work, the adequate performance of which requires engineering education, training and experience. Responsibilities may include planning engineering works and providing consultation. These positions may specialize in a particular area of assignment and/or direct the work of technical staff. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Supports the work of engineering designs, plans, calculation, inspections, and reports for projects.
- Assists with the assignment of work and performance of technical and support staff assigned to projects.
- Oversees studies, conducts surveys and performs data analyses.
- Assists with interim and final inspections of construction projects to determine compliance with applicable laws, regulations, and specifications.
- Assists with the preparation and reviews of moderately complex plans and/or contracts for projects.
- Assists in the writing of statistical and narrative reports detailing recommendations, conclusions, and findings from inspections and reviews.
- Provides technical assistance to subordinates and outside entities involved with projects.
- Researches professional journals and trade publications to gain knowledge of new technologies, assigning reading materials to subordinates.
- Attends state and national meetings and seminars to improve and/or share engineering knowledge.

**KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of agency specific policies and practices.
- Knowledge of applicable state and federal laws, rules and regulations.
- Knowledge of equipment and other instruments used in various types of engineering.
- Knowledge of fundamentals of various types of engineering.
- Ability to direct the work of technical staff.

- Ability to communicate effectively, both orally and in writing.
- Ability to develop and maintain effective working relationships.

**MINIMUM QUALIFICATIONS:**

**Education:** Bachelor's degree from a regionally accredited college or university with a major in Engineering OR Bachelor's degree from an ABET accredited college or university with a major in Civil, Electrical, Electrical Design, Mechanical or Mining Engineering Technology.

**Experience:** 2-4 years full-time or equivalent part-time paid experience related to Engineering

**Education & Experience Substitution:** Master's Degree in Engineering may substitute for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** N/A

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**CLASS TITLE: Technical Analyst****DISTINGUISHING CHARACTERISTICS:**

These positions, at the full-performance level, perform administrative work, the adequate performance of which requires engineering education, training and experience. Responsibilities may include planning engineering works and providing consultation. These positions may serve as a staff specialist in a particular area and/or direct the work of technical staff. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Supports the work of engineering designs, plans, calculation, inspections, and reports for projects.
- Assists with the assignment of work and performance of technical and support staff assigned to projects.
- Oversees studies, conducts surveys and performs data analyses.
- Assists with interim and final inspections of construction projects to determine compliance with applicable laws, regulations, and specifications.
- Assists with the preparation and reviews of complex plans and/or contracts for projects.
- Assists in the writing of statistical and narrative reports detailing recommendations, conclusions, and findings from inspections and reviews.
- Provides technical assistance to subordinates and outside entities involved with projects.
- Researches professional journals and trade publications to gain knowledge of new technologies, assigning reading materials to subordinates.
- Attends state and national meetings and seminars to improve and/or share engineering knowledge.
- May review permit applications, amendments and revisions for administrative and technical completeness.

## **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of agency specific policies and practices.
- Knowledge of applicable state and federal laws, rules and regulations.
- Knowledge of equipment and other instruments used in various types of engineering.
- Knowledge of fundamentals of various types of engineering.
- Ability to direct the work of technical staff.
- Ability to communicate effectively, both orally and in writing.
- Ability to develop and maintain effective working relationships.

## **MINIMUM QUALIFICATIONS:**

**Education:** Bachelor's degree from a regionally accredited college or university with a major in Engineering OR Bachelor's degree from an ABET accredited college or university with a major in Civil, Electrical, Electrical Design, Mechanical or Mining Engineering Technology.

**Experience:** 3-5 years full-time or equivalent part-time paid experience related to Engineering

**Education & Experience Substitution:** Master's Degree in Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** N/A

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## **CLASS TITLE: Technical Analyst Senior**

### **DISTINGUISHING CHARACTERISTICS:**

These positions, at the full-performance level, perform administrative and supervisory work, the adequate performance of which requires engineering education, training and experience. They have full responsibility for developing procedures, organizing operations, planning, scheduling, and evaluating the work of the unit. These positions perform predominantly administrative duties involving budgeting, staff, coordinating and reporting activities. They may supervise multiple recognized organization units of engineering staff and professional, technical and support staff. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Supervises the activities of multiple units of professionals and other staff, defining the mission and goals of each unit, assigning a budget, and evaluating the efficiency of the units by results received.
- Represents the department and/or units before various boards and other groups in administrative matters.
- Reviews the work activities and performances of subordinates.
- Attends meetings with agency management to establish policy and procedure, budget and staffing allotments, legislation, and other matters as they pertain to projects.
- Attends state and national meetings and seminars to gain and/or share engineering knowledge.
- Coordinates complex projects.

- Write statistical and narrative reports detailing recommendations, conclusions, and findings from inspections and reviews.
- Researches professional journals and trade publications to gain knowledge of new technologies, assigning reading materials to subordinates.
- May review subordinates' project analyses of plans and/or contracts for projects for compliance and quality assurance, working closely with other agencies, departments, and/or units for which he/she has managerial responsibilities.
- May oversee the review of permit applications, amendments and revisions for administrative and technical completeness, providing technical support and guidance.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of agency specific policies and practices.
- Knowledge of applicable state and federal laws, rules and regulations.
- Knowledge of equipment and other instruments used in various types of engineering.
- Knowledge of fundamentals of various types of engineering.
- Ability to direct the work of professional staff.
- Ability to communicate effectively, both orally and in writing.
- Ability to develop and maintain effective working relationships.

#### **MINIMUM QUALIFICATIONS:**

**Education:** Bachelor's degree from a regionally accredited college or university with a major in Engineering OR Bachelor's degree from an ABET accredited college or university with a major in Civil, Electrical, Electrical Design, Mechanical or Mining Engineering Technology.

**Experience:** 6-8 years full-time or equivalent part-time paid experience related to Engineering

**Education & Experience Substitution:** Master's Degree in Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** N/A

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#### **CLASS TITLE: Engineer Trainee**

#### **DISTINGUISHING CHARACTERISTICS:**

These positions, under close supervision of a licensed professional engineer, perform professional engineering services. Responsibilities may include planning and design, conducting studies, data analysis, consultation, reviews for compliance and the coordination of construction projects. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Assists with and/or performs calculations, studies, plans and data analyses, under the supervision of a licensed engineer.
- Reviews plans, specifications, analyses, manuals and engineering related agreements, ensuring accuracy and compliance.

- Assists in the coordination of projects.
- Assists with and/or conducts inspections of sites, ensuring compliance with all applicable laws, regulations, and specifications.
- Assists with and/or engages in writing reports, detailing recommendations, conclusions and findings from inspections and reviews.
- Reads professional journals, and trade publications to gain knowledge of new technologies.
- Attends state and national meetings and seminars to improve and share engineering knowledge.
- May assist with and/or investigate citizen complaints pertaining to environmental policy violations and/or provide local communities and citizens with guidance concerning environmental issues.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all applicable policies, procedures, laws, rules and regulations.
- Knowledge of equipment and instruments used in various types of engineering.
- Knowledge of fundamentals, principles and practices of various types of engineering.
- Ability to comprehend and analyze technical drawings and specifications.
- Ability to operate related computer applications and programs.
- Ability to communicate effectively, both orally and in writing.
- Ability to establish and maintain effective working relationships.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** N/A

**Education & Experience Substitution:** N/A

**Certificates, Licenses, Registrations:** Current license as an Engineer-in-Training is required.

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#### **CLASS TITLE: Engineer Associate**

#### **DISTINGUISHING CHARACTERISTICS:**

These positions, under general supervision, perform full performance professional engineering services. At this level, work is performed with more independence as proficiency is demonstrated. Responsibilities may include planning and design, conducting studies, data analysis, consultation, reviews for compliance and the coordination of construction projects. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Performs calculations, studies, plans and data analyses.
- Reviews plans, specifications, analyses, manuals and engineering related agreements and permits, ensuring accuracy and compliance.



- Coordinates projects.
- Conducts inspections of sites, ensuring compliance with all applicable laws, regulations, and specifications.
- Reviews plans and/or contracts, calculates material needs and recommends alternative methods for construction projects.
- Writes reports, detailing recommendations, conclusions and findings from inspections and reviews.
- Reads professional journals, and trade publications to gain knowledge of new technologies.
- Attends state and national meetings and seminars to improve and share engineering knowledge.
- May attend meetings and/or public hearings to provide technical information.
- May investigate citizen complaints pertaining to environmental policy violations and/or provide local communities and citizens with guidance concerning environmental issues.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all applicable policies, procedures, laws, rules and regulations.
- Knowledge of equipment and instruments used in various types of engineering.
- Knowledge of fundamentals, principles and practices of various types of engineering.
- Ability to comprehend and analyze technical drawings and specifications.
- Ability to operate related computer applications and programs.
- Ability to communicate effectively, both orally and in writing.
- Ability to establish and maintain effective working relationships.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** N/A

**Education & Experience Substitution:** N/A

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE:** Engineer

#### **DISTINGUISHING CHARACTERISTICS:**

These positions, under limited supervision, perform advanced level professional engineering services. Responsibilities include planning and design, conducting studies, data analysis, consultation, reviews for compliance and the coordination of construction projects. They may be specialized in a particular area of Engineering. In serving as project managers, these positions may be lead workers over a team and are required to stay within an assigned budget. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Performs complex project specific designs, plans and calculations.
- Conducts inspections of sites, ensuring compliance with all applicable laws, regulations, and specifications.
- Reviews complex plans and/or contracts, calculates material needs and recommends alternative methods for construction projects.
- Prepares purchasing documents for construction projects and procurement.
- Reviews and approves invoices and applications for payment from contractors and consultants for work performed.
- Writes reports detailing recommendations, conclusions and findings from inspections and reviews.
- Reads professional journals and trade publications to gain knowledge of new technologies, assigning reading material to subordinates.
- Attends state and national meetings and seminars to improve and share engineering knowledge.
- May supervise and train lower level engineers and/or related technical or support staff.
- May independently performs studies and analyses, reviewing and generating policy and procedures.
- May represent the agency during legal proceedings.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all applicable policies, procedures, laws, rules and regulations.
- Knowledge of equipment and instruments used in various types of engineering.
- Knowledge of fundamentals, principles and practices of various types of engineering.
- Ability to apply engineering knowledge to solve engineering related problems.
- Ability to direct the work of engineering, technical and related staff.
- Ability to operate related computer applications and programs.
- Ability to communicate effectively, both orally and in writing.
- Ability to establish and maintain effective working relationships.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 6-8 years full-time or equivalent part-time paid experience related to Engineering, of which 1-3 years must have been as a licensed Professional Engineer.

**Education & Experience Substitution:** Master's Degree in Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE: Engineer Senior****DISTINGUISHING CHARACTERISTICS:**

These positions, under limited supervision, perform expert level professional engineering services. Responsibilities may include planning and design, conducting studies, data analysis, consultation, reviews for compliance and the coordination of construction projects. They serve as a staff expert in a specialized area of Engineering. Overseeing one unit, they lead and/or train lower level engineers and related staff and are required to stay within an assigned budget for projects. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Directs the activities of one unit of engineers, technical and support staff.
- Supervises field staff in performing surveys and inspections, providing technical assistance.
- Defines the mission and goals of the unit, assigns a budget, and evaluates the efficiency of work by results achieved.
- Reviews data analyses completed by subordinate staff, ensuring accuracy.
- Attends meetings with agency management to establish policy and procedure, budget and staffing allotments, legislation, and other matters as they pertain to the unit.
- Attends state and national meetings and seminars to gain and share engineering knowledge.
- Coordinates complex construction projects.
- Reviews and/or approves subordinates' project analyses of plans and/or contracts for projects, recommending alternative methods and ensuring quality and compliance.
- Writes reports detailing recommendations, conclusions and findings from inspections and reviews.
- Represents the department and/or unit before various boards and other groups.
- Attends meetings or hearings to observe or attest to engineering issues.
- Reads professional journals and trade publications to gain knowledge of new technologies, assigning reading materials to subordinates.
- May represent the agency during legal proceedings.

**KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all applicable policies, procedures, laws, rules and regulations.
- Knowledge of equipment and instruments used in various types of engineering.
- Knowledge of fundamentals, principles and practices of various types of engineering.
- Ability to apply engineering knowledge to solve engineering related problems.
- Ability to direct the work of engineering, technical and related staff.
- Ability to operate related computer applications and programs.
- Ability to communicate effectively, both orally and in writing.
- Ability to establish and maintain effective working relationships.

**MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 6-8 years full-time or equivalent part-time paid experience as a licensed professional engineer.

**Education & Experience Substitution:** Master's Degree in Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE: Engineering Manager****DISTINGUISHING CHARACTERISTICS:**

These positions perform administrative and supervisory responsibilities related to the delivery of professional engineering services. Positions at this level perform predominately administrative duties involving coordination, budgeting, staffing and reporting. They are responsible for the integrity of all engineering projects performed. These positions supervise a defined district comprised of professional, technical and support staff. They have responsibility for developing procedures, organizing operations, planning, scheduling and evaluating the agency. These positions have responsibility for setting and controlling budgets. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Directs the activities of engineers, technical and support staff in multiple offices of a defined district.
- Provides technical assistance to and oversees staff performing surveys and inspections.
- Defines the mission and goals of the district, assigns a budget, and evaluates the efficiency of work by results achieved.
- Represents the district before various boards and other groups.
- Reviews data analyses completed by subordinate staff, ensuring accuracy.
- Attends meetings with agency management to establish policy and procedure, budget and staffing allotments, legislation, and other matters as they pertain to the district.
- Attends state and national meetings and seminars to gain and share engineering knowledge.
- Coordinates complex construction projects.
- Reviews and/or approves subordinates' project analyses of plans and/or contracts for projects, recommending alternative methods and ensuring quality and compliance.
- Writes reports detailing recommendations, conclusions and findings from inspections and reviews.
- Attends meetings or hearings to observe or attest to engineering issues.
- Reads professional journals and trade publications to gain knowledge of new technologies, assigning reading materials to subordinates.
- May represent the agency during legal proceedings.

## **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all applicable policies, procedures, laws, rules and regulations.
- Knowledge of equipment and instruments used in various types of engineering.
- Knowledge of fundamentals, principles and practices of various types of engineering.
- Ability to apply engineering knowledge to solve engineering related problems.
- Ability to direct the work of engineering, technical and related staff.
- Ability to operate related computer applications and programs.
- Ability to communicate effectively, both orally and in writing.
- Ability to establish and maintain effective working relationships.

## **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 8-10 years full-time or equivalent part-time paid experience as a licensed professional engineer.

**Education & Experience Substitution:** Master's Degree in Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE:** Engineer Chief

## **DISTINGUISHING CHARACTERISTICS:**

These positions, with full responsibility, perform administrative and supervisory responsibilities related to the delivery of professional engineering services for multiple units which comprise a division or section within a state agency. Positions at this level perform predominately administrative duties involving coordination, budgeting, staffing and reporting. They are ultimately responsible for the integrity of all engineering projects performed for the agency. They have full responsibility for developing procedures, organizing operations, planning, scheduling and evaluating the agency. This classification requires licensure by the West Virginia State Board of Registration for Professional Engineers as a professional engineer. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Directs the activities of engineers, technical and support staff in multiple units which comprise a division or section within a state agency.
- Defines the mission and goals of the division or section, assigns budgets and evaluates the efficiency of work by results achieved.
- Provides technical and professional engineering assistance to staff.
- Represents the agency or section before various boards and other groups.

- Attends meetings with agency management to establish policy and procedure, budget and staffing allotments, legislation, and other matters as they pertain to the division or section.
- Attends meetings to discuss technical issues and financial worthiness of proposed projects.
- Attends state and national meetings and seminars to gain and share engineering knowledge.
- Coordinates complex construction projects.
- Reviews and/or approves subordinates' project analyses of plans and/or contracts for projects, recommending alternative methods and ensuring quality and compliance.
- Writes reports detailing recommendations, conclusions and findings from inspections and reviews.
- Reviews and responds with appropriate actions to matters concerning personnel issues.
- Attends meetings or hearings to observe or attest to engineering issues.
- Reads professional journals and trade publications to gain knowledge of new technologies, assigning reading materials to subordinates.
- May represent the agency during legal proceedings.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all applicable policies, procedures, laws, rules and regulations.
- Knowledge of equipment and instruments used in various types of engineering.
- Knowledge of fundamentals, principles and practices of various types of engineering.
- Ability to apply engineering knowledge to solve engineering related problems.
- Ability to direct the work of engineering, technical and related staff.
- Ability to operate related computer applications and programs.
- Ability to communicate effectively, both orally and in writing.
- Ability to establish and maintain effective working relationships.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 9-11 years full-time or equivalent part-time paid experience as a licensed Professional Engineer.

**Education & Experience Substitution:** Master's Degree in Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

**CLASS TITLE:** Highway Engineer Trainee

#### **DISTINGUISHING CHARACTERISTICS:**

These positions, under close supervision of licensed Highway Engineers, perform beginning level work in the area of highway civil engineering, while participating in an on-the-job training

program. Responsibilities may include planning and design, data analysis, reviews for compliance and the coordination of construction projects. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Prepares routine plans, drawings and specifications in compliance with applicable standards.
- Performs data analyses and computations.
- Coordinates construction project activities.
- Performs preliminary cost estimates for construction projects.
- Performs field inspection of traffic problems and/or construction projects.
- Uses data to develop cross section and alignments.
- Performs field checks at highway construction project sites.
- Performs design and drafting as required.

**KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of algebra, plane and solid geometry, plane trigonometry and calculus.
- Knowledge of the principles of civil engineering utilized to develop drawings and specifications for components of highway projects.
- Knowledge of the principles of plane and route surveying.
- Knowledge of the principles of hydraulics and hydrology.
- Ability to read and interpret inspection and testing reports, engineering drawings and specifications, and topographic and other maps.
- Ability to prepare technical reports of field investigation.
- Ability to read and interpret federal, state and local codes, regulations and standards applicable to the design or construction of highway projects.
- Ability to communicate effectively both orally and in writing.
- Ability to establish and maintain effective working relationships.

**MINIMUM QUALIFICATIONS:**

**Education:** Bachelor's degree in civil engineering from a regionally ABET accredited college or university.

**Experience:** No experience required.

**Education Substitution:** A Bachelor's degree in Civil engineering Technology from a regionally ABET accredited college or university or a Bachelor's degree in Civil Engineering from a non-ABET accredited college or university may be substituted for the required education if the applicant has also passed the Fundamentals of Engineering Examination administered by the West Virginia Board of Registration for Professional Engineers, or an equivalent examination administered by another state's engineer registration organization.

**Certificates, Licenses, Registrations:** Current license as an Engineer-in-Training by the West Virginia State Board of Registration for Professional Engineers is preferred.

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**CLASS TITLE: Highway Engineer Associate****DISTINGUISHING CHARACTERISTICS:**

These positions, under general supervision, perform full performance professional engineering services related to highways and their attendant facilities and structures. Responsibilities may include planning and design, data analysis, reviews for compliance and the coordination of construction projects. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Prepares plans, drawings and specifications in compliance with applicable standards.
- Reviews design plans for accuracy and completeness from conception to finish.
- Prepares engineering reports for superiors and executives.
- Performs data analyses and computations.
- Coordinates construction project activities, reviewing plans and project documents completed by other personnel, ensuring compliance with all applicable standards.
- Prepares cost estimates, bid proposals and other financial documents for construction projects.
- Performs field inspection of traffic problems and/or construction projects, addressing and resolving existing problems and/or suggesting alternative methods.
- Uses data to develop cross section and alignments.
- Performs field checks at highway construction project sites.
- Performs design and drafting as required.
- Evaluates data collected by field personnel and incorporates same into studies and plans.
- Reviews contract plans, specifications, test results, and agreements from an engineering aspect for accuracy and completeness.
- May perform duties in a transportation engineering specialty such as: concrete, steel, bituminous materials, environmental measurements, geotechnical evaluations, instrumental analysis, computer applications, structural analysis, electronics, metallography, corrosion, welding and mathematical analysis, transportation systems analysis, route location, project evaluation, transportation planning, design, pavement, hydraulics, or other related fields.

**KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of the current principles, methods, and practices of civil engineering.
- Knowledge of the laws, policies and regulations governing the area of employment.
- Knowledge and understanding of applicable internal policies, procedures and practices.
- Knowledge of the accumulated findings in the area of employment.
- Knowledge of engineering research techniques.
- Ability to plan, organize, direct, and coordinate the activities of professional engineering staff.

- Ability to conduct successful applied research in a specialized branch of transportation engineering.
- Ability to write professional quality papers, reports, research studies, and projects.
- Ability to establish and maintain effective working relationships.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** N/A

**Education & Experience Substitution:** N/A

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE:** **CLASS TITLE: Highway Engineer**

#### **DISTINGUISHING CHARACTERISTICS:**

These positions, under limited supervision, perform full performance professional engineering services related to highways and their attendant facilities and structures. Responsibilities may include planning and design, data analysis, reviews for compliance and the coordination of construction projects. In serving as project managers, these positions may be lead workers over a team and are required to stay within an assigned budget. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Prepares plans, drawings and specifications in compliance with applicable standards.
- Reviews design plans, specifications and test results for accuracy and completeness from conception to finish.
- Prepares engineering reports for superiors and executives.
- Coordinates construction project activities, reviewing plans and project documents completed by other personnel, ensuring compliance with all applicable standards.
- Plans, schedules, leads and trains subordinate employees, assigning and reviewing work.
- Reviews contracts, cost estimates, bid proposals financial documents for construction projects.
- Performs field reviews and inspections, ensuring compliance.
- Evaluates data collected by field personnel and incorporates same into studies and plans.
- May perform duties in a transportation engineering specialty such as: concrete, steel, bituminous materials, environmental measurements, geotechnical evaluations, instrumental analysis, computer applications, structural analysis, electronics, metallography, corrosion, welding and mathematical analysis, transportation systems analysis, route location, project evaluation, transportation planning, design, pavement, hydraulics, or other related fields.



## **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of the principles and practices of transportation engineering as it relates to the planning and operation in the area of employment.
- Knowledge of current civil engineering practices and principles in the area of employment.
- Knowledge of modern design, construction, maintenance and planning as related to the specific job assignment.
- Knowledge of the accumulated findings in the area of employment.
- Knowledge of engineering research techniques.
- Ability to effectively lead a large engineering staff.
- Ability to conduct successful applied research in a specialized branch of highway engineering.
- Ability to write professional quality papers, reports, research studies, and projects.
- Ability to communicate effectively both orally and in writing.
- Ability to establish and maintain effective working relationships.

## **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 4-6 years of professional highway engineering experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master of Science Degree in Civil Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis. Non-highway professional engineering experience may be substituted for the highway engineering experience at the rate of two years of general experience for one year of highway related experience.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE:** **CLASS TITLE:** Highway Engineer Senior

## **DISTINGUISHING CHARACTERISTICS:**

These positions, under limited supervision, perform advanced level professional engineering services related to highways and their attendant facilities and structures. These positions perform supervisory and administrative duties as the head of a major engineering unit or as an assistant to a District Engineer. These positions have budgetary responsibilities and supervise multiple project managers. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Serves as the head of a major engineering unit or assists the Highway Engineering Manager in overseeing multiple function-specific organizational units.

- Organizes, oversees, monitors and manages projects specific to area of employment.
- Determines and plans labor, equipment and materials daily to be used for function-specific projects, such as construction or maintenance.
- Provides guidance to organizational supervisors regarding personnel actions, such as hiring, promotions and disciplinary actions, as well as overseeing staffing.
- Reviews and approves employee schedules and requests for leave, overtime, purchases and travel.
- Handles citizen requests for assistance, including gathering information, conducting a field investigation and developing and implementing a plan of action.
- Keeps records and writes detailed reports.
- Develops purchase orders, plans and cost estimates for projects.
- Oversees inventories specific to area of employment.
- Reviews plans, drawings and specifications, ensuring compliance with applicable standards.
- May assess training needs and determine strategies to provide for those needs.
- May direct organizational activities during emergency events.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of the principles and practices of transportation engineering as it relates to the planning, programming, operation, and administration in the area of employment.
- Knowledge of current civil engineering practices and principles in the area of employment.
- Knowledge of modern design, construction, maintenance and planning as related to the specific job assignment.
- Knowledge of all applicable laws, codes, policies and regulations.
- Knowledge of the accumulated findings in the area of employment.
- Knowledge of engineering research techniques.
- Ability to effectively supervise a large engineering staff, including other supervisory positions.
- Ability to conduct successful applied research in a specialized branch of highway engineering.
- Ability to write professional quality papers, reports, research studies, and projects.
- Ability to communicate effectively both orally and in writing.
- Ability to establish and maintain effective working relationships.
- May require ability to manage multiple organizations.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 5-7 years of professional highway engineering experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master of Science Degree in Civil Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE: Highway Engineering Manager**

**DISTINGUISHING CHARACTERISTICS:**

These positions perform expert level professional engineering services related to highways and their attendant facilities and structures. These positions predominantly perform supervisory and advanced level administrative duties as a District Engineer, overseeing a function, such as construction or maintenance. They supervise staff and are responsible for staying within an assigned budget. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.):*

- Plans, organizes and reviews function specific engineering and administrative activities within a district.
- Administers and oversees all aspects of projects to include: review of contracts and plans, resolution of problems that may arise, field reviews, inspections and the composition of all related reports.
- Oversees the application of and adherence to all departmental regulations, policies, practices and standards.
- Plans and oversees staff development and training activities.
- Supervises personnel, making personnel and equipment assignments.
- Monitors compliance with federal and state laws, regulations, agency policies and practices and professional standards.
- Approves/signs Contact Reports, Change Orders, Progress Estimate Payments, Final Inspection Reports, Final project Completions, Subcontractor requests and all related correspondence.
- Oversees and recommends personnel and staffing changes to indicate selection, advancement, evaluation and termination of personnel.
- Develops and implements new procedures to facilitate improved productivity and organization.

**KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of supervisory and project management methods.
- Knowledge of engineering principles and practices as related to area of employment.
- Knowledge of the laws, regulations and procedures governing project management.
- Knowledge of the laws, regulations and procedures governing personnel management.

- Knowledge of internal policies of the Department of Transportation as they relate to the area of employment.
- Ability to plan, direct, and organize the activities of others, to delegate authority, to assign areas of responsibility and evaluate staff and work performance.
- Ability to plan and conduct a successful staff development program.
- Ability to apply abstract policy, technical and administrative theory in specific field situations.
- Ability to write professional quality papers, reports, research studies and projects.
- Ability to communicate effectively both orally and in writing.
- Ability to establish and maintain effective working relationships with others.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 6-8 years of professional highway engineering experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master of Science Degree in Civil Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

#### **CLASS TITLE: Highway Engineering Manager Senior**

#### **DISTINGUISHING CHARACTERISTICS:**

These positions perform expert level professional engineering services related to highways and their attendant facilities and structure. These positions predominantly perform supervisory and advanced level administrative duties as the head of a division. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.):*

- Provides technical and administrative leadership and oversight within the division, maintaining awareness of statewide transportation planning needs and issues.
- Performs field reviews of operations, such as those related to the Core Maintenance and Annual Plans.
- Administers function-specific statewide programs.
- Coordinates professional development of staff and provides training in planning, scheduling and performing function-specific activities.
- Reviews and evaluates studies, analyses, plans and recommendations prepared by staff.
- Assists with and/or establishes technical and administrative policies, guidelines, directives and procedures.
- May direct and supervise the work of staff, delegating work assignments and ensuring the timely and accurate completion of projects.
- May oversee personnel matters, transactions and records.

- May serve as a liaison between district offices and Central Office or represent higher level officials.
- May direct organizational activities during emergency events.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of engineering principles and practices as related to area of employment.
- Knowledge of all laws, regulations, policies and procedures governing area of employment.
- Knowledge of internal policies of the Department of Transportation as they relate to the area of employment.
- Knowledge of statewide transportation planning needs and issues.
- May require knowledge of personnel transactions, supervision and training of staff.
- Ability to apply engineering principles and practices as related to area of employment.
- Ability to oversee and address transportation planning needs and issues.
- Ability to communicate effectively both orally and in writing.
- Ability to establish and maintain effective working relationships.
- May require ability to oversee personnel transactions, supervise and train staff.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 7-9 years of professional highway engineering experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master of Science Degree in Civil Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

**CLASS TITLE:** Highway Engineering Director

#### **DISTINGUISHING CHARACTERISTICS:**

These positions perform expert level professional engineering services related to highways and their attendant facilities and structure. These positions predominantly perform supervisory and advanced level administrative duties as a Division Director. Perform related work as required.

**EXAMPLES OF WORK:** (Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)

- Plans, organizes, directs and controls the division activities and the work of division employees.
- Identifies division goals and courses of action.
- Oversees the application of and adherence to all applicable regulations, policies, practices and standards.

- Plans and oversees staff development and training activities of the division, including identifying training needs and oversight of the training budget.
- Establishes organizational structure, allocating personnel and resources.
- Performs and oversees personnel matters and transactions related to selection, advancement, evaluation and termination of division personnel.
- Coordinates the activities of the design, construction, maintenance, realty and equipment elements of division projects.
- Monitors compliance with federal and state laws, regulations, agency policies and practices and professional standards.
- Reviews and oversees technical reports and information.
- Establishes and maintain effective working relationships.

### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of the principles and practices of transportation engineering as it relates to the planning, programming, operation, and administration in the area of employment.
- Knowledge of the principles and practices of civil engineering in the area of employment.
- Knowledge of the laws and regulations governing the divisions and/or sections in the area of employment and of the inter-relationships between these sections and divisions.
- Knowledge of internal policies of the Department as they relate to the area of employment.
- Knowledge of the accumulated findings in the area of employment.
- Knowledge of engineering research techniques.
- Ability to communicate effectively both orally and in writing.
- Ability to establish and maintain good working relationships with superiors, subordinates, and counterparts in other agencies and other states.
- Ability to plan, direct, and organize the activities of others, to delegate authority, to assign areas of responsibility and evaluate staff and work performance.
- Ability to plan and conduct a successful staff development program.
- Ability to apply abstract policy, technical and administrative theory in specific field situations.
- Ability to provide broad direction and leadership for various Departmental activities.
- Ability to conduct successful applied research in a specialized branch of transportation engineering.
- Ability to write professional quality papers, reports, research studies and projects.

### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 8-10 years of professional highway engineering experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master of Science Degree in Civil Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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**CLASS TITLE: Deputy State Highway Engineer**

**DISTINGUISHING CHARACTERISTICS:**

These positions perform highly responsible administrative and professional civil engineering work in the areas of operation and construction as a deputy to the State Highway Engineer. Perform related work as required.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Plans, organizes and reviews the engineering and non-engineering activities in the division.
- Oversees the application of and adherence to all departmental regulations, policies, practices and standards.
- Plans and oversees staff development and training activities of the division.
- Monitors compliance with federal and state laws, regulations, agency policies and practices and professional standards.
- Oversees the administrative function of the division to include payroll, accounting, procurement, records retention and public information.
- Oversees and recommends personnel and staffing changes to indicate selection, advancement, evaluation and termination of division personnel.
- Maintains effective working relationships with federal transportation officials, contractors, state and local officials, advocacy/interest groups and the public.
- Assists in the formulation and implementation of departmental policy, and coordinates the activities of the design, construction, maintenance, realty and equipment elements of division project.

**KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of the principles and practices of transportation engineering as it relates to the planning, programming, operation, and administration in the area of employment.
- Knowledge of the principles and practices of civil engineering in the area of employment.
- Knowledge of the laws and regulations governing the divisions and/or sections in the area of employment and of the inter-relationships between these sections and divisions.
- Knowledge of internal policies of the Department as they relate to the area of employment.
- Knowledge of the accumulated findings in the area of employment.
- Knowledge of engineering research techniques.
- Ability to communicate effectively both orally and in writing.



- Ability to establish and maintain good working relationships with superiors, subordinates, and counterparts in other agencies and other states.
- Ability to plan, direct, and organize the activities of others, to delegate authority, to assign areas of responsibility and evaluate staff and work performance.
- Ability to plan and conduct a successful staff development program.
- Ability to apply abstract policy, technical and administrative theory in specific field situations.
- Ability to provide broad direction and leadership for various Departmental activities.
- Ability to conduct successful applied research in a specialized branch of transportation engineering.
- Ability to write professional quality papers, reports, research studies and projects.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 9-11 years related full-time or part-time equivalent paid experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master of Science Degree in Civil Engineering from an accredited college or university may be substituted for the required experience on a year-for-year basis. Non-highway professional engineering experience may be substituted for the professional highway experience at the rate of two years of general experience for one year of highway related experience.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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#### **CLASS TITLE: State Highway Engineer**

#### **DISTINGUISHING CHARACTERISTICS:**

These positions direct all operational engineering activities of the Division of Highways and provide general policy and priority guidance to management programming and control engineering. Authority for final decisions is governed by Commissioner's orders and policies and by the general understanding that unusual, exceptional, and controversial items will be reviewed by the Commissioner.

**EXAMPLES OF WORK:** *(Any specific position in this class may not include all of the duties listed; nor do the examples listed cover all of the duties which may be assigned.)*

- Manages and supervises all engineering phases of the planning, construction, and maintenance of highway systems.
- Prepares alternate approaches to highway systems for review by the Commissioner and the Legislature.
- Implements final plan for highway systems after they are approved by the Commissioner.
- Reviews highway design, construction, and maintenance projects at major junctures to ensure they are progressing properly.

- Renders final decisions on technical problems with regard to highway planning, construction, or maintenance.
- Meets with the public at public hearings on meetings to discuss departmental projects.

#### **KNOWLEDGE, SKILLS AND ABILITIES:**

- Knowledge of all highway design, construction, operation and maintenance principles and practices.
- Knowledge of highway planning principles.
- Ability to organize, direct and control a statewide highway engineering program.
- Ability to invest wisely in manpower and equipment for immediate and long range benefits, and establish and perpetuate a steady, high volume output.
- Ability to interact with government officials, employees, and the general public to establish and maintain effective working relationships.
- Ability to express ideas clearly, both orally and in writing.

#### **MINIMUM QUALIFICATIONS:**

**Education:** N/A

**Experience:** 10-12 years related full-time or equivalent part-time paid experience related to the design, construction and/or maintenance of highways.

**Education & Experience Substitution:** Master's of Science Degree in Civil Engineering from an accredited college or university (obtained after registration) may be substituted for the required experience on a year-for-year basis.

**Certificates, Licenses, Registrations:** Current license as a Professional Engineer by the West Virginia State Board of Registration for Professional Engineers is required.

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